

4.10.2.6 IMPACTS FROM ALTERNATIVE 3— NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

Alternative 3 would generate less overall noise than the Proposed Action because construction would be confined between Elk Grove Substation and Tracy Substation. Therefore, noise impacts would be considered insignificant.

4.10.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

Under the No Action Alternative, maintenance and line inspection activities would continue on the existing lines. There would be periodic noise from inspection aircraft and vehicles, with the associated noise of equipment and tools and the noise would be short term and insignificant.

4.11 PALEONTOLOGICAL RESOURCES

4.11.1 AFFECTED ENVIRONMENT

Paleontological resources are fossilized remains or imprints of multicellular animals and plants (36 CFR Part 261.2). A fossil is the remnant or trace of an organism of a past geologic age, such as a skeleton or leaf imprint, embedded and preserved in the earth's crust. The significance of paleontological resources is subjectively ranked based on the presumed scientific value of proven fossil content. Vertebrate fossils are typically less abundant than invertebrate fossils, and are usually rated more significant. However, well-preserved soft-bodied organisms, including worms, insects, spiders, or rare invertebrate fossils, may be considered highly significant.

Activities affecting paleontological resources on Federal lands would fall under the Federal *Land Policy and Management Act* of 1976 (43 USC 1701 et seq.), which requires public lands to be managed in a manner that protects “scientific qualities” and other values of resources. The *Antiquities Act of 1906* (16 USC 431-433) requires Federal protection for significant paleontological resources on Federally owned lands.

4.11.1.1 RESOURCE STUDY AREA

The study area for paleontological resources is the width of one mile from the ROW centerline. The excavation depth for footings would depend on soil characteristics at each structure location; however, a depth of 10 feet has been assumed for similar projects.

4.11.1.2 ISSUES OF ENVIRONMENTAL CONCERN

The issue of environmental concern for paleontological resources is the potential destruction of significant fossils in the study area. Potential impacts to paleontological

resources would be confined to construction activities. The likelihood of impacts from reconductoring would be low because ground disturbance would take place in areas that have already been disturbed when replacing structures. Construction of a new transmission line would necessitate excavation of potentially undisturbed ground and require extensive use of heavy equipment for new structures. Excavation for structures covers largely disturbed agricultural regions north and south of the Sacramento metropolitan area.

4.11.1.3 CHARACTERIZATION

Paleontological resources are defined by the geologic units in which they are found. Fossils are found in sedimentary rocks, which are typically classified into lithostratigraphic units, units of stratified, mainly sedimentary, rocks grouped based on lithology, rather than biologic characteristics or age.

As discussed in Section 4.7 (Geology), three types of geologic formations exist along the transmission corridor between the O'Banion Substation and Tracy Substation (see Figure 4-3), including:

- **Quaternary Floodbasin (Qb)**—Floodbasin deposits, associated with flood stage on major streams,
- **Quaternary River Deposit (Qr)**—River deposits, associated with river channels, floodplains, and natural levees, and
- **Quaternary Continental deposit (QTc)**—Continental deposits (older alluvium, fanglomerates, and sedimentary formations).

The river and floodbasin deposits are Holocene (since the last ice age within the last 11,000 years), and the continental deposits are Pliocene to Holocene. The Pliocene (5.4 - 2.4 million years ago) represents the final stages of a global cooling trend that led up to the ice ages.

In general, the fossil potential for the river deposits is low because this is primarily an erosional environment, whereas the fossil potential for the floodbasin and continental deposits is high, since they are depositional environments. An example of the fossil potential of these units is excavation of bones from a giant ground sloth, bison, and camel, and mammoth tusks at the Arco Arena in 1989 (Butler 2001, Hilton 2002). Arco Arena is about 2 miles west of Segment C MP 6.0, outside the study area. These fossils were found at a depth of 12 to 15 feet and date between 600,000 and 15,000 years old in continental deposits. This was a massive excavation with a much greater likelihood of encountering fossils, when compared to excavations necessary for structure footings.

The Proposed Action and alternatives are in the central portion of California's Central Valley. Literature review

and fossil databases did not reveal any recorded fossil locations within the study area. Lithostratigraphic units within the study area range in age from Holocene to Pliocene. The continental and floodbasin deposits have the potential to contain significant fossils. Much of the existing and proposed routes and alternatives cover large areas of row crops and rice fields. Because of intense cultivation, these areas would generally have a low paleontologic expectation for near-surface soils.

4.11.2 ENVIRONMENTAL CONSEQUENCES

4.11.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives could have a significant effect on paleontological resources if they would substantially compromise the scientific and educational value of a significant paleontological site.

4.11.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for paleontological resources issues from Table 3-4 include the following:

- Before construction, all supervisory construction personnel would be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract would address Federal, state, and tribal laws regarding antiquities, fossils, plants, and wildlife, including collection and removal, and the importance of these resources and the purpose and necessity of protecting them. Western would instruct that cultural resources might be present in the study area. Contract employees would be trained to stop work near any discovery, and notify Western's regional environmental manager, who would confirm that the resource is evaluated and avoided. Known cultural resources would be fenced and a minimum distance maintained for work disturbances.
- Preconstruction surveys of sensitive paleontological areas may be conducted as agreed upon by the land-managing agency and lead Federal agency.

4.11.2.3 IMPACTS FROM THE PROPOSED ACTION, ALTERNATIVE 1, ALTERNATIVE 2, AND ALTERNATIVE 3

Potential paleontological impacts are essentially proportional to the number of new structures required by a given alternative and the types of deposits on which they would be built. As discussed in Section 4.11.1.3, paleontological resources are unlikely to be present in river deposits (Q_r) and likely to be present in floodbasin (Q_b) or continental deposits (QT_c). Access roads should have negligible impact on paleontological resources because they are not generally associated with excavation. Table 4.11-1 presents the estimated miles and proposed number of new structures that would be constructed on floodbasin, continental, and river deposits.

The Proposed Action would have the greatest number of new structures built on deposits likely to contain paleontological resources. Possible impacts from the Proposed Action and alternatives to paleontological resources would be confined to extremely localized areas (primarily excavations for new structure footings). Excavation for structures covers largely disturbed agricultural regions, so shallow excavations are unlikely to uncover fossils. Monitoring excavations and halting excavation if fossils are encountered would eliminate any significant effect on paleontological resources for the scientific and educational value of a significant paleontological site.

4.11.2.4 IMPACTS FROM THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the existing double-circuit 230-kV transmission system between O'Banion Substation and Tracy Substation would continue to operate and be maintained as it is presently. The line would be periodically accessed for routine maintenance or emergency repairs along the existing ROW and access roads. These activities are also consistent with the Proposed Action and action alternatives. This action would have no impact to paleontological resources.

Table 4.11-1. Paleontological Deposits of Concern

DESCRIPTION	Proposed Action	Alternative 1	Alternative 2	Alternative 3	No Action
Miles of study area traversing continental and floodbasin deposits (where paleontological resources would likely be found)	92.6 miles	84 miles	32.2 miles	42 miles	0 miles
Miles of study area traversing river deposits (where paleontological resources would not likely be found)	15.2 miles	15.2 miles	3 miles	4.2 miles	0 miles
Number of new structures likely to be built in continental and floodbasin deposits	282	167	153	204	0

Source: Original 2002